

Natural Resources Conservation Service
Conservation Practice Standard
TREE/SHRUB SITE PREPARATION

(Ac.)

Code 490

DEFINITION

Treatment of areas to improve site conditions for establishing trees and/or shrubs.

PURPOSE

- Encourage natural regeneration of desirable woody plants.
- Permit artificial establishment of woody plants.

CONDITIONS WHERE PRACTICE APPLIES

On all lands needing treatment to establish trees and/or shrubs.

CRITERIA

General Criteria Applicable to all Purposes

The method, intensity, and timing of site preparation will match the limitations of the site, safety, equipment and the requirements for establishing the desired woody species.

Appropriate tree/shrub site preparation methods include mechanical, chemical, burning, or biological treatments applied either alone or in combination.

The above site preparation methods will be chosen based on the following characteristics: existing vegetation types and amount; site characteristics such as soil type and condition; soil texture, compaction and wetness; size, topography and steepness; establishment method(s), and woody species to be established.

Protect water quality by maintaining pre-existing filter strips, grassed waterways and riparian forest buffers, when converting cropland and grassland. Refer to the following practices for more information: Filter Strip (393), Grassed Waterways (412), Critical Area Planting (342), Riparian Forest Buffer (392) or other suitable practices.

Control and protect against invasive and noxious weeds that may arise from site preparation activities that expose bare soil. Use the practice Integrated Pest Management (595). Follow the specifications in the Tree/Shrub Establishment (612) standard if a cover crop will be planted prior to planting.

Use the practice Access Control (472), if necessary, to exclude livestock to prevent damage to the site preparation area.

Document and mitigate any detrimental impacts on wildlife species, pollinators, and other wildlife habitats when selecting site preparation methods. Use Upland Wildlife Habitat Management (645), Wetland Wildlife Habitat Management (644) or Early Successional Habitat Development/Management (647) for recommendations for these facilitating practices.

Document and protect cultural resources, wetlands, and other unique areas.

MECHANICAL SITE PREPARATION

Use a current published County Soil Survey or the Web Soil Survey to determine the suitability and limitation for mechanical site preparation, erosion hazard and rutting hazard.
<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

Deep ripping shall be performed only when a root growth restrictive layer caused by surface compaction, tillage pans, deep compaction or inherent hardpans are present and exists at a depth of 12 inches or less from the surface.

A maximum of 30% of the soil surface will be exposed when using tillage or cultivating equipment if excessive wind erosion will occur.

Prepare the site as close to the planting date as possible to reduce the need for a cover crop.

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For linear plantings (rows or blocks) strips should be a minimum of 3 feet wide.

If grubs are expected to be a problem when planting on grasslands and pasturelands, in late summer kill the existing cover and plow or till to expose grubs to winter temperatures and loss of moisture. Use soil conservation practices such as Contour Farming (330), Grassed Waterway (412), Contour Buffer Strips (332) or other suitable soil conserving practices.

Treat slash and debris so they do not create habitat or harbor harmful levels of pests, hinder the operation of necessary equipment or personnel, or create an undue fire hazard.

CHEMICAL SITE PREPARATION

Use the practice Integrated Pest Management (595) if chemicals will be used.

Use WIN_PST to evaluate leaching and runoff potentials for chemical site preparation products. Pesticide/soil hazard ratings of "extra high" or "high" shall be accompanied by mitigating practices and/or substitution of pesticides with lower risk ratings. Use low volatile formulations. Plan the best time to apply chemicals; either in the fall or early spring prior to establishment, use pre-emergent chemicals when appropriate and only while existing advanced reproduction is still dormant in the late winter or early spring.

PRESCRIBED BURNING

Conduct burning only under controlled, predetermined conditions as outlined in a prescribed burn plan. Refer to the practice Prescribed Burning (338) for more information.

BIOLOGICAL CONTROL

Grasslands and pasturelands to be converted to tree/shrub establishment can be grazed by livestock to reduce excess quantity of vegetation. Use the practice Prescribed Grazing (528). Livestock will be removed prior to planting.

As necessary, use other appropriate treatments to finish preparing the site for seeding or planting.

Additional Criteria for Artificial Establishment

Use RUSLE2 to determine soil erosion potential when converting agricultural fields or grasslands to tree/shrub establishment. Practices such as Access Road (560), and

maintaining existing grassed waterways, terraces, diversions or water control structures and planting on the contour should be used on sites where potential soil erosion is a concern.

Additional Criteria for Natural Regeneration

Time site preparation activities, such as scarification, to coincide with natural seed fall of desired woody species.

Existing desirable tree species must be present with the potential for successful natural regeneration (e.g. root and stump sprouts) and seed production. Refer to Tree/Shrub Establishment (612) for more information.

When adequate regeneration is present in sufficient numbers remove the overstory.

CONSIDERATIONS

For more information refer to the guidelines in "Sustaining Minnesota Forest Resources: Voluntary Site-level Forest Management Guidelines," Mechanical Site Preparation and Pesticide Use.

Apply band or spot treatments over broadcast treatments, as applicable, when applying herbicides.

Document if there may be any effects from carry-over herbicide residues in the soil on newly planted trees or shrubs.

Since particulates, smoke, and other air pollutants may be generated by site preparation activities, note on-site and off-site effects on air quality if significant impacts are anticipated.

If visual impacts are a concern, use site preparation activities that minimize large disturbed areas such as treating in rows or patches, use spot or strip herbicide treatments, or scatter or remove slash piles and limit the use of windrows.

PLANS AND SPECIFICATIONS

Prepare and record specifications for applying this practice and for protecting the site using approved specification sheets, job sheets, technical notes and/or narrative statements in the conservation plan or other acceptable documentation.

OPERATION AND MAINTENANCE

Maintain erosion control and water quality practices if used, until the site is stabilized or the plants are planted or seeded.

Control locally invasive species and noxious weeds if present.

Control access by people, vehicles or equipment during or after site preparation to minimize erosion, compaction and other site impacts.

REFERENCES

Web Soil Survey

<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

National PLANTS Database

<http://plants.usda.gov/java/>

"Sustaining Minnesota Forest Resources: Voluntary Site-Level Forest Management Guidelines for Landowners, Loggers and Resource Managers." 2005. Minnesota Forest Resources Council, St. Paul, MN.

http://www.frc.state.mn.us/documents/council/site-level/MFRC_FMG&Biomass_2007-12-17.pdf